CLAIMS

1. A method for obtaining a stabilized SiO_xF_y fluorine-doped silica thin layer, characterized in that it comprises forming on a SiO_xF_y silicon oxyfluoride layer, a SiO_2 silica and/or a metal oxide protective layer through ion beam-assisted vapor phase deposition, comprising bombarding the layer being formed with a beam of positive ions formed from a rare gas, from oxygen or from a mixture of two or more of such gases, or through cathodic sputtering of a metal or silicon layer followed by an oxidation step of the deposited metal or silicon layer.

2. A method according to claim 1, characterized in that the protective layer is 2 to 40 nm thick, preferably 5 to 30 nm and more preferably, 5 to 20 nm.

3. A method according to claim 1 or 2, characterized in that the gases being used for the ion beam assistance are selected amongst argon, xenon and oxygen, preferably, argon and xenon.

4. A method according to any of preceding claims, characterized in that the SiO_xF_y layer is 5 to 300 nm thick, preferably, 30 to 100 nm.

5. A method according to any of preceding claims, characterized in that the refractive index of the SiO_xF_y layer ranges from 1.38 to 1.44 , for a wavelength of 630 nm and at 25°C.

6. A method according to any of preceding claims, characterized in that the SiOxFy layer is produced through silicon cathodic sputtering followed by an oxidation step in the presence of a fluorinated gas such as CF_4.

7. A stabilized SiO_xF_y fluorine-doped silica thin layer, characterized in that it is coated with a silica and/or metal oxide protective layer obtained through ion beam-assisted vapor phase deposition, comprising bombarding the layer being formed with a beam of positive ions formed from a rare gas, from oxygen or from a mixture of two or more of such gases, or through cathodic sputtering of a metal or silicon layer followed by an oxidation step of the silicon or the metal layer.

8. A thin layer according to claim 7, characterized in that the protective layer is 2 to 40 nm thick, preferably 5 to 30 nm and more preferably, 5 to 20 nm.

9. A thin layer according to claims 7 or 8, characterized in that the gases being used for the ion beam assistance are selected amongst argon, xenon and oxygen, preferably, argon and xenon.

10. A thin layer according to any of claims 7 to 9, characterized in that the SiO_xF_y layer is 5 to 300 nm thick, preferably 30 to 100 nm.

11. A thin layer according to any of claims 7 to 10, characterized in that the refractive index of the SiO_xF_y layer ranges from 1.38 to 1.44 for a wavelength of 630 nm and at 25°C.

12. A thin layer according to any of claims 7 to 11, characterized in that the fluorine-doped silica layer is obtained through cathodic sputtering of a silicon layer followed with an oxidation step of the silicon layer in the presence of a fluorinated gas such as CF_4.

13. An antireflection multilayered coating formed on a substrate, characterized in that it comprises at least one stabilized thin layer according to any of claims 7 to 12.

14. An antireflection coating according to claim 11, characterized in that it comprises a stacking of high index (HI) and a low index (LI) layers, at least one of the low index layers being made of a thin layer according to any of claims 7 to 12.

15. An antireflection coating according to claim 14, characterized in that the low index layer made of a thin layer according to any of claims 7 to 12 is the higher layer of the stacking.

16. An antireflection coating according to claim 15, characterized in that it comprises four layers in the following respective order, starting from the substrate surface: HI/LI/HI/LI.

17. An antireflection coating according to claim 16, characterized in that the thicknesses of said layers vary in the following respective order, starting from the substrate surface:

HI: from 10 to 40 nm

LI: from 10 to 55 nm, preferably from 10 to 45 nm

HI: from 30 to 155 nm, preferably from 40 to 150 nm, and more preferably from 120 to 150 nm

LI (SiO_xF_y layer): from 70 to 110 nm

Protective layer: from 2 to 50 nm.

18. An antireflection coating according to claim 15, characterized in that it comprises six layers in the following respective order, starting from the substrate surface: HI/LI/HI/LI/HI/LI.

19. An antireflection coating according to claim 18, characterized in that the thicknesses of said layers vary in the following respective order, starting from the substrate surface:

HI: from 10 to 30 nm

BI: from 10 to 55 nm, preferably from 10 to 45 nm

HI: from 10 to 160 nm

BI: from 10 to 45 nm

HI: from 35 to 170 nm

BI: from 70 to 95 nm

Protective layer: from 2 to 40 nm.

20. An antireflection coating according to any of claims 13 to 19, characterized in that the substrate is an organic glass, optionally provided with an anti-abrasion coating and/or an anti-shock coating.

21. An ophthalmic lens made in organic glass, characterized in that it comprises an antireflection coating according to any of claims 13 to 20.